

## WHAT IS CLAIMED IS:

1. A communication system provided with a terminal device and a call connection server operable to connect a call at a predetermined telephone number to said terminal device on the basis of a designation address which is associated with said predetermined telephone number,

said terminal device comprising:

a registration information transmitting unit operable to transmit, when connecting with a network which can be used for communication with said call connection server, to said call connection server a terminal identifier for identifying said terminal device and a terminal location address for identifying the location thereof on said network with which said terminal device is connected,

said call connection server comprising:

a storing unit operable to store said designation address and said terminal identifier in association with said predetermined telephone number;

a registration information receiving unit operable to receive said terminal identifier and said terminal location address;

an authentication unit operable to authenticate said terminal device on the basis of said terminal identifier which is received and said terminal identifier which is stored in said storing unit;

a priority designation address setting unit operable to associate, when said terminal device is authenticated by said authentication unit, said terminal location address as received and said predetermined telephone number, which is stored in said storing unit in association with said terminal identifier, and set said terminal location address as a priority designation address which is given a priority higher than said designation address; and

a call connection unit operable to connect said call to said terminal device on the basis of said terminal location address in the case where said priority designation address has been set up.

2. The communication system as claimed in claim 1 wherein said call connection server further comprises a detection unit operable to detect that said terminal device is disconnected from said network, and wherein

5       when said detection unit detects that said terminal device is disconnected from said network, said priority designation address setting unit deregisters said priority designation address as set.

10   3. The communication system as claimed in claim 1 wherein said storing unit is operable to further store, in association with said predetermined telephone number, a user identifier for identifying a user who utilizes said predetermined telephone number and a password associated with said user identifier;  
15   wherein

      said registration information transmitting unit is operable to further transmit said user identifier and said password to said call connection server; wherein

20   said registration information receiving unit is operable to receive said user identifier and said password; and wherein

      said authentication unit is operable to authenticate said terminal device on the basis of said terminal identifier, said user identifier and said password as received.

25   4. The communication system as claimed in claim 1 wherein said terminal device further comprising a terminal identifier storing unit operable to store said terminal identifier in order that said terminal identifier can be read only by said  
30   registration information transmitting unit; and wherein

      said registration information transmitting unit is operable to transmit said terminal identifier as read from said terminal identifier storing unit to said call connection server.

35   5. The communication system as claimed in claim 3 wherein said terminal device further comprises a user information storing unit operable to store said user identifier and said password; and wherein

said registration information transmitting unit is operable to transmit said terminal identifier and said user identifier and password stored in said user information storing unit to said call connection server.

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6. The communication system as claimed in claim 1 wherein said terminal device includes:

a private base station apparatus that can be connected with said network; and

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a mobile terminal device provided with said registration information transmitting unit and connectable with said network by wireless communication through either a public wireless base station or said private base station apparatus, and wherein

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said mobile terminal device can perform wireless communication with said private base station apparatus by the use of the same protocol as it uses for the wireless communication with said public wireless base station.

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7. The communication system as claimed in claim 6 wherein each of said mobile terminal device and said private base station apparatus is provided with:

a first communication interface operable on the basis of said protocol;

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a second communication interface operable for local communication; and

a switch unit operable to switch between said first communication interface and said second communication interface in accordance with the manipulation of a user.

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8. The communication system as claimed in claim 6 wherein said private base station apparatus is provided with: an adapter unit which is removably attached to a computer; and

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a communication antenna unit operable for wireless communication with said mobile terminal device.

9. A call connection server operable to connect a call at a predetermined telephone number to a terminal device on the basis of a designation address which is associated with said

predetermined telephone number, comprising:

a storing unit operable to store said designation address and said terminal identifier in association with said predetermined telephone number;

5 a registration information receiving unit operable to receive, when said terminal device is connected with a network which can be used for communication with said call connection server, from said terminal device a terminal identifier for identifying said terminal device and a terminal location  
10 address for identifying the location thereof on said network with which said terminal device is connected,

an authentication unit operable to authenticate said terminal device on the basis of said terminal identifier which is received and said terminal identifier which is stored in  
15 said storing unit;

a priority designation address setting unit operable to associate, when said terminal device is authenticated by said authentication unit, said terminal location address as received and said predetermined telephone number, which is  
20 stored in said storing unit in association with said terminal identifier, and set said terminal location address as a priority designation address which is given a priority higher than said designation address; and

a call connection unit operable to connect said call to  
25 said terminal device on the basis of said terminal location address in the case where said priority designation address has been set up.

10. The call connection server as claimed in claim 9 further  
30 comprising a detection unit operable to detect that said terminal device is disconnected from said network, wherein

when said detection unit detects that said terminal device is disconnected from said network, said priority designation address setting unit deregisters said priority  
35 designation address as set.

11. The call connection server as claimed in claim 9 wherein said storing unit is operable to further store, in association with said predetermined telephone number, a user identifier

for identifying a user who utilizes said predetermined telephone number and a password associated with said user identifier, wherein

5 said registration information receiving unit is operable to further receive said user identifier and said password from said terminal device; and wherein

said authentication unit is operable to authenticate said terminal device on the basis of said terminal identifier, said user identifier and said password as received.

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12. A terminal device operable in order that a call at a predetermined telephone number to it on the basis of a designation address which is associated with said predetermined telephone number, wherein

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a call connection server receives a terminal identifier for identifying said terminal device and a terminal location address for identifying the location thereof on said network which can be used for communication with said call connection server from said terminal device, and associates said terminal location address as received and said predetermined telephone number, and sets said terminal location address as a priority designation address which is given a priority higher than said designation address; and wherein

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said terminal device is provided with a registration information transmitting unit operable to transmit, when it is connected with said network, said terminal identifier and said terminal location address to said call connection server.

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13. The terminal device as claimed in claim 12 further comprising a terminal identifier storing unit operable to store said terminal identifier in order that said terminal identifier can be read only by said registration information transmitting unit, wherein

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said registration information transmitting unit is operable to transmit said terminal identifier as read from said terminal identifier storing unit to said call connection server.

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14. The terminal device as claimed in claim 12 wherein said

call connection server is operable to authenticate said terminal device on the basis of said terminal identifier, a user identifier for identifying a user who utilizes said predetermined telephone number and said user identifier;  
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said terminal device further comprises: a user information storing unit operable to store said user identifier and said password; and wherein

10 said registration information transmitting unit is operable to transmit said terminal identifier and said user identifier and password stored in said user information storing unit to said call connection server.

15 15. The terminal device as claimed in claim 12 wherein said terminal device includes:

a private base station apparatus that can be connected with said network; and

20 a mobile terminal device provided with said registration information transmitting unit and connectable with said network by wireless communication through either a public wireless base station or said private base station apparatus, and wherein

25 said mobile terminal device can perform wireless communication with said private base station apparatus by the use of the same protocol as it uses for the wireless communication with said public wireless base station.

30 16. The terminal device as claimed in claim 15 wherein each of said mobile terminal device and said private base station apparatus is provided with:

a first communication interface operable on the basis of said protocol;

a second communication interface operable for local communication; and

35 a switch unit operable to switch between said first communication interface and said second communication interface in accordance with the manipulation of a user.

17. The terminal device as claimed in claim 15 wherein said

private base station apparatus is provided with: an adapter unit which is removably attached to a computer; and

a communication antenna unit operable for wireless communication with said mobile terminal device.

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18. A communication method operable with a terminal device and a call connection server operable to connect a call at a predetermined telephone number to said terminal device on the basis of a designation address which is associated with said predetermined telephone number, wherein

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said call connection server is operable to store said designation address and said terminal identifier in association with said predetermined telephone number, said communication method comprising:

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a step (A) in which, when said terminal device is connected with a network which can be used for communication with said call connection server, said call connection server receives from said terminal device a terminal identifier for identifying said terminal device and a terminal location address for identifying the location thereof on said network with which said terminal device is connected,

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a step (B) in which said call connection server authenticates said terminal device on the basis of said terminal identifier and said terminal identifier as stored;

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a step (C) in which, when said terminal device is authenticated in said step (B), said call connection server associates said terminal location address as received and said predetermined telephone number, which is stored in association with said terminal identifier, and sets said terminal location address as a priority designation address which is given a priority higher than said designation address; and

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a step (D) in which, in the case where said priority designation address has been set up, said call connection server connects said call to said terminal device on the basis of said terminal location address.

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19. The communication method as claimed in claim 18 further comprising:

a step (E) in which said call connection server detects

that said terminal device is disconnected from said network;  
and

a step (F) in which, when it is detected in said step (E) that said terminal device is disconnected from said network, said server deregisters said priority designation address which is set in said step (C).

20. The communication method as claimed in claim 18 wherein a user identifier for identifying a user who utilizes said predetermined telephone number and a password associated with said user identifier are further stored in association with said predetermined telephone number, wherein

said call connection server receives said user identifier and said password from said call connection server in said step (A), wherein

said call connection server authenticates said terminal device on the basis of said terminal identifier, said user identifier and said password as received in said step (B).

21. The communication method as claimed in claim 18 wherein said call connection server receives said terminal identifier, which is stored inside of said terminal device so that it can only be read, from said terminal device in said step (A).

22. The communication method as claimed in claim 20 wherein said call connection server receives said user identifier and said password, which are stored inside of said terminal device, from said terminal device in said step (A).

23. The communication method as claimed in claim 18 wherein said terminal device includes:

a private base station apparatus that can be connected with said network; and a mobile terminal device provided with said registration information transmitting unit and connectable with said network by wireless communication by wireless communication through either a public wireless base station or said private base station apparatus, and wherein

said mobile terminal device connects with said network in said step (A) by establishing wireless communication with



said private base station apparatus by the use of the same protocol as it uses for the wireless communication with said public wireless base station.